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deavored to show that the practical conceptions of duty and responsibility imply a definite conception of freedom. This conception of freedom has in turn been found to involve a metaphysical conception of fundamental importance, and a conception that is antagonistic alike to the temporal determinism of naturalism, and the super-temporal determinism of idealism. When the human individual believes that he is responsible for the fulfillment or violation of his duty, he believes that he inhabits a universe which permits a selection from among genuine possibilities and suffers absolute change. Either the positivist or the transcendentalist may have discovered a higher truth than that which can be directly derived from the moral experience. It is true, as Professor Royce says, that when one maintains a conception as finally valid, "he becomes responsible for an ontology." But whatever is done in the direction of comparing philosophy and life, is a gain for both. And where, as in this case, there is a serious difference relating to the fundamental concerns of each, it is the part of philosophy either to correct a universal misconception, or to be more faithful and direct in its interpretation of life.

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## MIND AND NATURE.

THERE is no thought more familiar, and few more disquieting, to the reflective man of to-day than that of the utter deadness and soullessness of the vast world of things around us. It is indeed an inevitable consequence of influences from which we cannot withdraw ourselves that we, town-dwellers and creatures of the library and laboratory, who are perforce, in the common round of our daily life, witnesses of the practical triumphs of mechanical invention, and by the nature of our chosen studies all more or less brought acquainted with the methods and ideas of the mechanical sciences, should take the intellectual impress of our surroundings. Living in almost

hourly contact with the locomotive engine, the steam press, and the electric wire, gathering our ideals of truth and reality from the procedure and results of the experimental physicist, the physiologist, or the physiological psychologist, we cannot well escape the habitual thought of the outer world as a dreary waste of brute unconscious being, a realm of processes of a monotonous and mindless regularity, capable, by reason of this very monotony, of calculation and prediction, but devoid throughout of purpose, individuality, and moral significance. The cold glare of truth—so we are accustomed to repeat,—has long ago dispeopled our valleys, hills and streams of the visions by which they were once filled with a hundred forms of sentient purposeful life; it is only the poet who still habitually seeks in Nature a meaning and a mind with which his own may have fellowship and converse, and the charm of the poet's ideas is a quality we have long trained ourselves to believe quite independent of their truth. Even the Idealist in philosophy, who holds it as his creed that all reality is mental, is too often apt to resent the very existence of an "inorganic" world as a stone of stumbling maliciously flung down in the way of his faith.

Yet it were strange indeed if we could find much warmth of comfort in thus thinking of ourselves and our congeners as mere castaways of the creation, marooned by some inconceivable freak of destiny in the midst of a shoreless sea of meaninglessness, the sole thinking and striving beings in an unintelligent universe. If we are indeed alone as reasonable actors on this stage of the world, the remembrance of our loneliness at least strikes a chill to the heart. Even after we have schooled ourselves to see nothing in the opposing utterances of the poets but a tissue of lovely leasings, we still find ourselves constrained to seek to them, with immoral persistence, for an anodyne. Where the realities of waking life are so cheerless, a man, we think, may be no coward, and yet need a sleeping-draught.

But the very insistence with which our hearts refuse to be reconciled to this thought of the world as a soulless machine should suggest the possibility of a more rational and more manly way out of our difficulty. How if what we take for the

waking fact should itself be no more than a bad dream, begotten of ill-digested metaphysical theories; if the notion that reality is a machine should itself be, as Fechner called it, the night view, and the poet's conception the true daylight view of Nature? We should then need no drug-bottle of fiction to give us peace of mind; we should have but to wake up from our nightmare to find ourselves in a radiant sun-lit world instinct with life and purpose akin at heart to our own. It is the object of this essay to set forth reasons, which appear to me at least in principle irrefragable, for holding that this is indeed the case, and that the very suggestion of a mechanical unconscious reality contradicts itself the moment you ask seriously what it implies. The result we shall reach will be, in all essentials, the same as that of Professor Royce's essay on "Nature, Consciousness and Self-consciousness," but I propose to travel towards it by a somewhat different route, which had already led me to our common goal before I had the pleasure of reading Professor Royce's most stimulating book. We shall ask first, what kind of evidence is requisite and procurable for the existence of any finite mind other than my own; next how far what we commonly call external Nature affords such evidence. Thirdly, we may examine some of the reasons that have commonly led to the belief that Nature is a mere unconscious mechanism; finally we may indicate in the barest outline some results of general philosophical and ethical interest which seem to follow from the recognition of the universal presence of conscious mind in the natural world.

## I.

When the most illustrious and original of our English philosophers set out, in the interest of spiritual religion, to attack the belief in unconscious mechanism as the full truth about any real fact, he began, it will be remembered, by an assault on the notion of unperceived material existence. Presence to a perceiving subject—this is the gist of all his arguments—is inseparable from the existence of everything that we call physical fact; the very *esse* of the physical thing and its qualities is just *percipi*. But no one man ever perceives more than

the merest fragment of the actual physical world, and there are many of its components which no man ever has perceived, and as far as we can judge, no man ever will. Hence the physical world in its entirety must be always present to an all-embracing divine experience, and it is just its presence to such an experience which we mean when we assert its existence. Now both Berkeley's antipathy to a merely mechanical theory of Nature and the general principle of his argument against it are, as it seems to me, fundamentally sound. As we shall see more fully before we have done, if you once admit the possibility that any existence may be merely mechanical, you have no logical ground for denying that the whole of existence, ourselves and our acts included, is purely mechanical, and on such a view there is room in the world of real being neither for a spiritual religion nor for a genuine morality. It is not simply that, if the world is a mere mechanism, then our ethical and religious beliefs must be mere appearance, but that they must be baseless appearance, radically at variance with demonstrable reality, and thus no better than proved illusion. And, as to the principle of the contention that presence in an experience is the very meaning of existence, it is, to my mind at least, as Mr. Bradley says it is to his, so evident that I should find it impossible to meet anyone who disputes it on common ground. Its full force will perhaps be best brought out by disregarding the special grounds upon which it is supported by Berkeley, some of them only too insecure, and restating it in the form of a challenge. Produce, we may say to the objector, any piece of fact whatever of which you are prepared to maintain the real existence, and I will undertake to show that what makes it real can be nothing but its presence as an inseparable aspect of a sentient experience. What the special fact you choose for the purpose of the experiment may be, whether a physical quality or process, an artistic effect, or a moral excellence, makes no difference to the principle of the argument. For when you have once chosen your fact, and made your assertion, "This fact, A, really exists," we shall invite you to think, as you always can, of a corresponding A which is not real but merely imaginary, and then to say what it is that makes

the difference between the real and the imaginary or unreal A. If you will try the experiment, you will always find, as Kant proved in the historical case of the hundred dollars, that the difference does not lie in the addition of a new predicate to those by which the imaginary A is characterized, but always in the actual presence of the real A to a sentient experience, its entrance into some immediately apprehended whole. Even in the case of an A which, for some reason or other, is wholly inaccessible to human perception you cannot really escape from this conclusion. For, suppose you say, "The ice at the South Pole really exists, though it is impossible for a human eye to behold it," we shall invite you to explain more precisely what you mean by such a statement. You will then find yourself in a dilemma: either you mean that the Polar ice exists with all its qualities, including those which have no meaning at all except in relation to a perceiving organ, precisely as we should see it if we were there, and in that case the ice with all its qualities must presumably be always present, as such, to an experience which is not ours; or you mean that there really exist certain conditions, such that, on the addition of one further condition, the presence of a human spectator, they would yield a perception of the ice. But, not to insist on the point that the reality of a certain object and the reality of some of its conditions are not the same thing, what do you mean by a *really existing* condition as distinguished from one which is merely imagined to exist? Any answer to this question will show that the appeal to conditions only puts the difficulty back a stage, without in any way affecting the validity of the Berkeleyan contention.

Berkeley's difficulties really begin when he goes on to make an apparently simple and obvious addition to his principle. From the principle that to exist means to form an aspect in an experience, and that apart from presence in experience no sense can be attached to the term existence, he allows himself to draw the inference that the reality of sensible things consists *merely* in being perceived, their *esse* is *merely percipi*. Now it is always a *petitio principii* to argue that because A is B, therefore A is *only* B and nothing more, and the fallacy is,

in this case, destructive of the whole force of Berkeley's subsequent argument for the existence of God as the permanent percipient of the world of Nature. This is a point of such importance that it will be necessary to consider it in some detail. What Berkeley does is this: he sees, correctly enough that, except as entering into the experience of a sentient percipient nothing in Nature has any reality. He then makes a division, for which direct experience itself affords him no warrant, between the perceiving subject, on the one side, and the contents of his perception on the other. The former he takes as a permanent being of some kind or other, the latter he treats as the mere passing "ideas," or as a later form of the same doctrine phrases it, "the states of consciousness" of this permanent being. In making this division he is, of course, guided by a metaphysical pre-conception which a correct analysis of experience fails to justify. In an actual experience, such as for instance the direct apprehension of a physical reality external to myself, there may be ground for distinguishing two inseparable but not identical aspects, which form the basis of the later and more elaborate distinction of subject and object, but there is no ground for treating them as really separable in the sense that one is a mere state or modification of the other.\* And, if Berkeley's procedure were sound, it would make the whole of his subsequent philosophical construction superfluous. If the objects of the physical world are *simply* states or modifications of my consciousness, there seems to be no reason why I should suppose them to have any existence at all except at the moment in which my consciousness is occupied with

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\*We commonly overlook this fact in consequence of an unfortunate ambiguity in the English use of such words as "sensation," "perception." "Sensation" in the sense of "the process of becoming aware of a sense-content," is, of course, a "state" or "modification" of my consciousness; hence writers of the school of Mill unwarrantably go on to infer that the sensation, in the sense of the presented content itself, is "a state of consciousness." Strictly, we ought to distinguish (1) the *process* of sensation, which is a *state* of the subject, (2) the *content* of the sensation, which is an *appearance* to the subject: (3) the *object* of which is (2) the appearance. What the nature of this last is, is the question under discussion in the following pages. Idealism of the Hume and Mill type confounds (1), (2), (3) under a common denomination.

them, and the supposition that when I am not conscious of them they are present to the mind of God becomes a gratuitous hypothesis, invented to solve a question which ought not to have been asked. The logical conclusion from the premise that objects of experience are merely states of consciousness would be that I myself am the only reality in the world over and above my momentary states; and we could scarcely formulate this conclusion without seeing how forcibly it suggests the still more radical Humian doctrine, according to which there is no permanent reality on the side of the subject any more than on that of the object, but the momentary states themselves are the totality of existence.

Why is it then that Berkeley never draws either the Solipsist or the purely phenomenalist consequence, one of which is all he is entitled to on his own premises. The answer is both obvious and instructive. There is at least one class of perceived objects which we cannot, without outraging common sense, reduce to a congeries of modifications of our own consciousness, viz., our fellow-men. Whatever the rest of the choir and furniture of heaven and earth may be, it is at least certain that the men by whom I am surrounded in my daily life are neither mere states of my own consciousness, nor yet, in the language of that preposterous Metaphysic by which Mill sought to reconcile positive science and Humian scepticism, "possibilities of sensation." While it is true that in their case, as in that of everything else, *esse* is inseparable from *percipi*, it is equally true that it is not exhausted by *percipi*. They are not merely objects for my perception, but have a further and a relatively independent existence as themselves centres of experience, whether I perceive them or no. Accordingly we find that in Berkeley's own theory, spirits have to be admitted, by the side of sensible things, as real existences, and that their reality is placed not in the fact of their being perceived but in that of their being active centres of thought and perception. Now it is this real existence of our fellows which makes Solipsism an impossible philosophical theory. Apart from the problem they create there would, as far as I can see, be no difficulty in supposing myself the *sole* abiding reality in the universe, of which every thing else would be a mere temporary state.



Hence Professor Royce seems quite right in maintaining that the very notion of external or independent existence is social in its origin and nature; the only sense we can give, when pressed, to an assertion of the independent existence of anything is to say that it has, over and above the character of being perceived by me, the same kind of reality which belongs to the experiences of my fellows. Again, the independent existence of my fellows logically carries with it as a consequence, the independent existence, in the same sense, of the rest of the physical world of which I and they form part alike, and to which our destinies are linked in the chain of historical development. We do not merely infer from the independent existence of our fellows, by a more or less loose analogical argument, the similar existence of other things resembling them in their main physical properties. The real ground of the inference is much securer, and lies in the fact that the physical world as a whole including my fellows forms a vast connected system; they and their fortunes belong, on one side at least, to the general history of the physical world, and cannot be understood without reference to that larger whole. Hence the kind of existence which is predicated of one part of the system must, by a logical necessity, be ascribed equally to the remainder. It would be a direct outrage on logic to hold that, while one comparatively small part of the results of a single continuous process of development are not merely presented contents, but have a further mental existence of their own, the rest of the system may be simply and solely my own presentations. Hence the real independent existence of our fellow-men is seen to be the indispensable *Pou Sto* from which we can vindicate that of the rest of the physical world. But if this is our reason for asserting the independent existence of things, then since the "independence" in question meant simply that the *esse* of our fellows is not *percipi* merely, but also "independent existence," when asserted of Nature at large, must have the same general meaning. Nature, too, if its independent existence is to be anything more than a mere word, must be in reality a society of percipient and conative subjects. Either this, or a mere assemblage of "ideas in my head"; there is no third

possibility which can so much as be stated in intelligible language.\*

So far our general argument, agreeing in everything, except in its direct derivation from the speculation of Berkeley, with that of Professor Royce. But we have not yet faced what is really the fundamental question, the reasons for affirming the existence of our *Pou Sto* itself. Have we sufficient ground for asserting the independent existence of our fellow-men themselves? How if the protest of common sense against the Solipsist paradox should be based on nothing better than uncritical prejudice? Until we have disposed of this central doubt the whole of our idealistic construction hangs in the air. I should like to invite special attention to this part of our discussion, as I feel convinced that the treatment commonly given to the problem is wholly inadequate, besides involving serious difficulties of logical method. Where the independent existence of the rest of mankind is not simply assumed as a sort of immediate intuition for which no justification need be afforded, it is commonly declared to be proved by an argument from analogy. This is a view which appears to me, as to Professor Münsterberg, fundamentally false, and I should like to explain the nature of the error as carefully as I can.

What, let us ask, are precisely the terms of the alleged analogy, and what is its logical cogency? The more unthinking among those who hold the doctrine, say, and that the statement can be made at all is a painful proof of the thoughtlessness with which the fundamental problems of knowledge can be approached by persons who call themselves men of science, that the inference is from the resemblance of my own and my

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\*I suppose it may be advisable to remind the reader here that the general argument affords no warrant for any precise conclusion as to the number and kind of intelligent beings perceived by us as "external nature." *E. g.* we must not assume that they need correspond to the elementary constituents into which we divide things for the purpose of physical science, as is taken for granted by those who talk of the *Atom-Seelen*. Cf. Stout's "Manual of Psychology," p. 54. Again, in speaking of nature as *social*, we must remember that the various systems of non-human consciousness it contains may be separated from each other by chasms as wide as that which divides them from ourselves.

neighbor's nervous systems to a corresponding resemblance of our respective minds.\* There is no need to ask whether this inference, if made, would be logically valid; it is enough to say that we never, in point of fact, have the material for the conclusion before us. What is directly given me in perceptual experience is my own mind and my neighbor's nervous system. My own nervous system, as it is thought of by the student of anatomy, is an object which I never can perceive,† unless I can somehow be present at my own *post-mortem*. The truth is rather that it is by an analogical argument from previously ascertained resemblances between my fellows and myself, among which the possession of a common type of mental life is the most important, that I infer my own endowment with a system of nerve-cells and fibres such as I discover in them by actual dissection. If the evidence for the existence of other minds than my own is to rest on analogy at all, the analogy cannot be between nervous systems; it must be of an altogether simpler kind. The inference must be from the perceived likeness between my own perceptible outward form and that of others to an equal likeness in our minds. But, to begin with, would such an analogy have any conclusive force, if it were all we had to go on? Remember, that we are now supposed to be in the position of knowing our own mind and also, to some extent our own body, but, in the case of our fellow, only the second. Now, how in this situation can I with any cogency conclude that likeness of mind will go with likeness of body? Of course, when once I know, on whatever grounds, that the beings who most nearly resemble me in bodily structure also resemble me equally closely in type of mind, I can by a reason-

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\*Cf. Karl Pearson's "Grammar of Science," p. 57: "Consciousness is thus associated with physiological machinery of a certain character, which we sum up under brains and nerves. . . . In our fellow-men we observe this same machinery . . . and we infer consciousness." One can imagine what the learned professor's language would have been if he had found this piece of reasoning in the works of a "metaphysician." But popular anti-metaphysical arguments are traditionally absolved from all the rules of logic.

†In its entirety, that is. Of course I can perceive part of it *indirectly* as e. g., if I make a hole in my skull and observe the reflection of a part of my brain in the mirror.

able use of analogy infer that other creatures may be expected to present a degree of mental likeness to myself corresponding closely with their amount of bodily likeness. But, unless and until I have independent warrant for crediting my human fellow with a mind of the same type as my own, the whole of this inference hangs in the air; its logical strength, if taken by itself, is precisely nil. For this reason, we must, I hold, say that the validity of analogical argument depends on the independently known fact of our psychical kinship with our fellows, and not vice versa.\*

How then do we know this fundamental fact itself? The answer is, I believe, that we know it on evidence of an infinitely more conclusive character than any analogy. Indeed there is a sense in which we may truly call the existence of mind in other men a directly presented fact of immediate experience. Let me first illustrate my meaning by a simple example. I receive a letter by the post, which I believe to have come from a friend, and to express certain wishes or to communicate certain facts which my friend desires me to be informed of. Suppose the doubt were raised as to whether the letter expresses the purpose of a mind external to my own; let it be suggested that it is simply a result of certain purely mechanical occurrences, capable in the last resort of being completely resolved into a series of displacements of mass-particles or something of the sort. How can such a sceptical doubt be refuted? We might indeed proceed by analogical reasoning; we might analyze the letter into a series of up-strokes, down-strokes, horizontal lines, and so forth. We might then observe that when we ourselves write letters, we use just such a combination of strokes, and conclude by analogy that the marks before us had been produced by some other being similar to ourselves. The inference would however be worthless unless there is independent ground for the belief that *nothing but* an intelligent human being can produce just such a combination of strokes. The real ground for our confident conclusion that the letter cannot be the product of mere mechanism

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\*For if such minute resemblance as we have here were deceptive, it is hard to see how we could trust any inference from analogy.

is much surer; it is our direct perception that the ink-marks have a significant meaning, express a recognizable purpose of the same kind as those which compose our own inner life. What we rightly think incredible is not the mere production by an unintelligent mechanism of a particular long series of marks, but the presence in the series as a whole, if so produced, of a definite and recognizable purpose akin to those which make up our own inner life.

The importance of this consideration is so great that I may perhaps be allowed to enforce it further by an illustration within the illustration, before I return to our more general argument. Your conclusion, it might be said, is unsound: if a fount of type were shaken up and the results printed off at random, mere chance would sooner or later, but in any case within a finite time, include all possible combinations of the letters of the fount, even including such a combination as you find in a play of Shakespeare. Hence the presence of meaning in any given combination is not in itself evidence that it is the result of intelligent purpose. Such an objection would be as foolish as it is easy. In order that it should have any weight, the possible number of combinations must be finite; otherwise the probability of the result would be  $\frac{1}{\infty}$  — i. e., nothing. Hence, in order to get the series of letters which form a play of Shakespeare from a chance shaking up of our type, we should first require the types themselves to be exclusively those used in English printing, a condition which at once limits their number in a very special way, and should further need some very complicated restrictions to exclude the infinite repetition of individual letters. In fact, if the play of Shakespeare is to turn up as one among other chance arrangements of our material, the material must first of all be selected with the special object of getting this particular result sooner or later out of it. For instance, assuming that all our types are to be used in each shuffle, you would need as an initial condition of success to include just as many instances of each letter as there are in the play without either excess or defect. Where the possibilities are not thus limited from the start by definite

purposive selection, you are never entitled to look for a predetermined result within a finite time.\*

We may then confidently affirm that the evidence for mind beyond my own rests on no mere slippery basis of analogy; it depends on the certain principle that what exhibits definite meaning and purpose issues from mind and from no other source. The men around me are known not to be ingenious automata because their words and acts are seen to exhibit intelligent meaning and selective purpose. It is from kinship of purpose, not from mere physical resemblances, that I infer my community of mind with my fellows.

Well then, how do we come to perceive meaning and purpose in the speech and actions of our fellows? How can we be sure we are not reading into certain of our experiences a significance which only exists in our own imagination? The answer is not far to seek. Precisely because I am myself a social being whose individual purposes can only be realized in vital union with a community, the reality of the purposes of my fellows is guaranteed by the very same experience which assures me of the reality of my own purpose. In getting to know myself as a being with definite and permanent aims and purposes, I am at every step learning to know myself as one unit among others in a society knit together by community of purpose. My purposes have no meaning except as part of a wider system in which they on the whole find their completion and fulfilment, but also on occasion their neutralization. Unless the purposes of my society are real, the whole of my own inner life of aspiration, struggle, success, and defeat, is itself a pure illusion. This is, I suppose, what Professor Münsterberg means when he says that we regard our fellows as having a psychical nature like our own because we have in practice to

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\*Of course we may, and do, calculate the probability of a given occurrence in physical nature without any explicit reference to selection by conscious intelligence. But that is because, for the practical purposes of science, we are content to take the initial limitation of the possibilities simply as a fact, without raising the more ultimate question as to what such limitation implies.

take note of their purposes. Ultimately then we may say that it is the reality of our own existence as intelligent purposive beings which is our guarantee for the existence, as more than a mere presentation, of the whole world. Our own existence involves the equal existence, in the same general sense, of our fellow-men, and this again, as we have seen, the existence, once more in the same general sense, of the whole physical world. In other words, if any perceived thing is more than a mere presentation, the whole perceptual world must be something more than mere presentation, in the same sense.

We may illustrate what has just been said by a consideration of the actual steps by which we come to be aware of the personal nature of our fellow-men. If the view as to the evidence for their personality which we have rejected were sound, we ought to find that we begin in childhood by regarding the external world generally as non-intelligent, and gradually come, as experience accumulates, to ascribe more or less of intelligent personality, to those members of it who most nearly resemble ourselves in physical structure. Such a view, however natural from a certain philosophical standpoint, appears to rest on serious psychological mistake. As far as our self-knowledge enables us to say anything about the growing mind at its earliest stages, it seems safe to assert that, at first, we know neither ourselves nor anything else as intelligent and purposive. The child does not begin by looking on all the world around him as dead, and then go on to find out that some parts of it are, like himself, alive. He begins without any sense of the contrast at all. By the same stages by which he comes to a rudimentary self-consciousness, and learns that he is himself a being with meanings and purposes, he comes also to the knowledge that there are other purposes in the world around him, of which he must take note, and to which he must accommodate himself, if his own purposes are to find fulfilment. His immediate surroundings are personal for him, at this stage, not because of a recognized resemblance to his own body in their outward shape, but because they express pleasure or anger at his behavior in practical ways, which have to be

taken into account if he is himself to get what he wants from them. His constant tendency, like that of the uncivilized man, is to regard all movement on the part of physical objects as expressive of such purposive attitude of approval and disapproval of his own purposes until accumulating experience compels him to modify this early view. And when this takes place, it is, I think, safe to say that the distinction between persons, animals, and mere things, from the comparatively early age at which it is reached, is not, as a matter of psychological fact, based upon inference from likeness and unlikeness of external shape. It is rather a consequence of the discovery that the definiteness of the purposive attitudes of which he has for practical reasons to take note, and the extent to which they depend on his own expressions of purpose are by no means the same for all objects.

There are some objects which exhibit very little variety in their attitudes; you can count on their always behaving in the same general way, no matter what the particular purposive attitude you yourself take up toward them. It is sufficient for practical purposes to take note merely of their broad general ways of behavior. These are what the child learns to call *mere things*. There are others which cannot be so easily disposed of. Their behavior to you depends very much on the special character of the purpose which guides your behavior to them; you have therefore to take into account, for your own practical purposes, their special ways of being affected by your own special expressions of purpose; these are *living creatures*, which again get distinguished into the two classes of persons and mere animals according to the greater or less individuality of purposive behavior with which their attitudes respond to our own. And finally, we do not start with a definite perception of our own purpose in particular as genuinely individual, and go on afterwards to make the discovery that those of our fellows are equally individual. It is one and the same course of experience which teaches us our own individuality and reveals theirs; we get to know them in proportion as we know ourselves, and ourselves in proportion as we know them. In any sense in which our own purposes



can be said to be presented facts, those of our fellows are the same.\*

## II.

Now, we may draw from what has just been said a very important consequence, which has a direct bearing on our interpretation of the being of physical Nature. We are so completely accustomed to think of Nature as the merely non-mental and non-purposive that we often fall into the notion that its merely physical character is directly revealed as a fact of immediate experience. But, if our preceding analysis is correct in principle, this cannot be the case. What experience warrants us in saying is something quite different, viz., that for our practical purposes we have no need to take account of the presence of intelligent purpose and conscious individuality in the non-organic world. We learn from experience that we may treat such purpose and consciousness as non-existent for the special objects of human life because of the regularity with which external objects, other than animals and human beings, reply to our conduct with reactions conforming to a few general types. Individual ends and purposes in inorganic Nature, if they exist, may be discounted by us in setting out to realize our own human ends. And further if they exist, it seems to be beyond our power to discover their special character. But to argue that whatever may be, for certain special objects, disregarded, or even that whatever we cannot get to know in respect of its individual character, is simply non-existent, is a gross and palpable logical fallacy. You cannot argue from our failure to identify ends in Nature that there are none there. And the prevalence of the fallacy in our popular science and philosophy is only one of many indications of the cry-

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\*This last contention receives still completer vindication, if we consider with Professor Royce the enormous extent to which we learn our own purpose by *imitating* the acts of our fellows. It is from the process of imitation—to a large extent at least—that I draw my knowledge of the meaning involved in the acts I imitate. This is the philosophical basis for Plato's view of the fundamental significance of imitation in moral education. The child grows into the likeness of what he imitates, because it is through the imitation that he comes to the knowledge of himself.

ing need for a more widely diffused study of the elements of a scientific Logic. But why, it will be said, should we draw any conclusion at all? Ought we not to rest in a simple declaration of our own inability either to affirm or deny on the subject? *Mit Nichten*; we have on the one side, if our reasoning has been correct, the positive necessity to ascribe to the whole perceived world reality of a certain general type, unless all existence, including our own, is to be pronounced an illusion; against this necessity, our mere failure to know precisely how this general type gets individual expression must count in the scale of Logic for nothing at all. "What can be, and must be, that therefore is," though we may be entirely unable to say in detail how it is.

Further, is it the case that our specific experience does in fact leave us with nothing more than this failure to affirm the presence of purpose and consciousness in Nature? It is no doubt so, in the sense that experience gives us no right to affirm the presence in inorganic Nature of this or that special and recognizable purpose, or of this or that special form of conscious existence. It is only superstition in its pseudo-scientific and most objectionable form which believes in the possibility of constructing a positive and detailed doctrine as to the forms of consciousness which may underlie the different types of physical process. But this is not a complete answer to our question. Apart from any such detailed interpretations of special facts of experience our whole experience of our physical environment as a whole may, I take it, be said to come to us in a certain way, and with a certain general stamp. And the question is, as to what that stamp is. Now, I think it may fairly be said, that, except as a direct consequence of certain metaphysical pre-conceptions, physical Nature as a whole does not directly impress us with a sense of mere purposelessness. In our ordinary intercourse with her, in her various moods, she certainly seems to give us rather the sense of the presence of purposes of many and varied kinds, the precise character of which is too remote from human life for our comprehension. We find in her more of the riddling Sphinx than of the corpse or the machine. It is mysterious

and baffling life rather than death which we seem to read in her changing aspects.\*

Of course, it may be said that a general impression of this kind is a most uncertain guide, and must not be taken as establishing one conclusion rather than another. But it can fairly be retorted that the view which sees nothing in Nature but an ingenious machine is equally a preconception, and that the relative truth of the two views must in the last resort be decided, independently of their origin, by the extent to which each is capable of affording a consistent conception of the facts as a whole. Why the view which sees mind everywhere as the truth of Nature seems to be absolutely demanded, if we are to attach any meaning to the assertion of the existence of Nature, has already been shown, and we shall shortly deal with the positive contradictions which appear to be inseparable from the very thought of a self-existent mechanism. Meanwhile, some weight may fairly be ascribed to the general impression left on the mind by our daily intercourse with the natural world, taken in the mass.

Indeed, we may go a step further. The general impression we get of Nature, in our ordinary life, may perhaps be adequately expressed by a view like that of Professor Royce, who holds that Nature is to be thought of as a society of intelligences with which we human beings, owing to our special psychical structure, are entirely prevented from communicating. A theory of this kind at least gives expression to that sense of mystery with which the behavior of Nature most often affects us. But I doubt if it can be said to be altogether the truth. The barrier between our own mind and the mind in Nature is perhaps not so absolute as Professor Royce seems to believe. Few of us can have gone through life without some experience of those special moods in which the aspects

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\*That we do not realize this more strongly is, I believe, due to the artificial character of the habitual environment of the ordinary "civilized" life. The articles of human contrivance by which we are surrounded in our daily life appeal to us as mere embodiments of *our own* purposes, and thus blind us to the presence about us of purpose independent of ourselves. Even the "nature" most familiar to us is nature as subdued by artificial cultivation to the expression of man's ends.

of external Nature are found to correspond marvellously with our own moral being. Whatever pedants may say to the contrary, it is a certain fact that there are aspects of Nature which have an inexplicable sympathy with all that is purest, kindest, and most strenuous in our own human nature. If you doubt it, try the effect of a morning alone in a pine wood in early summer, and you will find that Wordsworth's lines about the moral effects of an impulse from a vernal wood are no mere idle fancy. You may not, strictly speaking, learn any new proposition in the moral sciences from a morning spent with the Mother in one of these moods, but indisputably you come away with all that makes for goodness and truth in you strengthened by the encounter. Yet there are other, if rarer, aspects of Nature in which she seems to have precisely the same mysterious power to call out and invigorate what is worst in us. She is an ally of God often, of Satan at least now and then. Now it is easy to dismiss facts like these as the effects of imagination; but the problem they present is not to be got rid of in any such summary way. Nothing that is actual as a factor in our experience is eliminated by the mere device of labelling it as illusion. The illusion is a fact, as much as any other fact, and must have its ground in reality. By dubbing what you do not understand illusion, you merely add to the problem of apprehending its sources the further problem of explaining why it is to be accounted deceptive. We may be mistaken in discerning this or that response in Nature to our own ethical aspirations and struggles, but what is there about her, if she is in truth a mere soulless mechanism, to suggest the interpretation at all? *Wär' nicht das Auge sonnenhaft, Wie könnte es das Licht erblicken?* asks Goethe, in one of his best-known utterances; and the question may be inverted with equal justice. If Nature has neither mind nor purpose, whence her power of reinforcing by subtle suggestion so many of our own characteristic purposes? Or what sympathy could there be, for good or bad, between a purposeless mechanism and us human combatants in the secular struggle of good against bad?

Nor is it as if this sense of the human comradeship of

Nature with ourselves were merely an occasional and exceptional thing in our experience. To many of us it may indeed be so; but the great poets of Nature, the Wordsworths and Merediths, have made its reality the very foundation of their reading of life; nor does it appear why the poet's view of the world should not *prima facie* be entitled to as respectful a hearing as that of the physicist or the materialistic metaphysician. It is founded at least as surely on a basis of immediate experience, as capable, in its own way, of being consistently worked out with reference to the whole of the facts; if we reject it without inquiry, what are we but the slaves of a metaphysical prejudice? At any rate while our previous contentions remain unanswered, we may with Faust retort to the complaint that Nature seems alien to our spiritual standards of worth,

Die Geisterwelt ist nicht verschlossen,  
Dein Sinn ist zu, dein Herz ist todt.

And we may fairly claim that our experience of Nature as a whole, when universalized and interpreted by the poet, should count in determining our attitude on the general philosophic question for as much as the infinitely more detailed, but at the same time necessarily restricted and one-sided experience of the physicist.\*

### III.

But we may take a bolder course with every prospect of success. We may claim that the grounds upon which Nature is so often pronounced to be mere purposeless mechanism are not legitimate deductions from any experimental fact or any true principle of experimental science, but mere metaphysical as-

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\*It may be said that our sense of fellowship with Nature can be explained by regarding the spiritual in ourselves as an outgrowth from natural beginnings, without ascribing spirituality to Nature herself. But (a) is the evolution of intelligence and purpose from the merely non-intelligent and non-purposive conceivable in any case? And (b) is it not a fact that the sense of fellowship extends not merely to rudimentary animal impulses, but, on occasion, at least, to our most fully human and spiritual aspirations? *I. e.* is it not Man at his highest whom we feel to be the meaning of Nature?

sumptions of the baldest kind. I propose to recapitulate here the arguments which appear to prove, first that the alleged facts which are supposed to establish the absence of mind and purpose from Nature neither warrant the conclusion, nor can so much as be shown to be genuine facts at all, and next that a self-existent and self-acting mechanism cannot ever be thought of without contradiction.

A. What then are the facts, such as they are, on the strength of which it has at one time or another been denied that Nature can be a realm of conscious purposes? I begin with the most superficial, and consequently one of the most obstinately popular, of the anti-spiritualist arguments. Nature, it is said, is regular and uniform in her operations; the very essence of mind is to be arbitrary and uncertain; where prediction and calculation are possible, the presence of mind is *ipso facto* excluded. The principle of the contention, then, is simply to set up caprice as the distinguishing characteristic of mind; to make mere irrationality the sole criterion of the presence of reason. This should be enough of itself to dispose of the argument for anyone who knows what he is talking about. Still it may be worth our while to point out that the fact itself is ridiculously misstated. It is not the case that the acts of conscious beings are simply unaccountable and unpredictable. What is true is that, in order to predict the behavior of individual intelligent agents with any degree of confidence, you need information of a very special kind. You cannot with confidence infer how they will behave by mere induction from the ascertained facts of their past behavior. You need to know the nature of the purposes which they are setting themselves to realize. If you know a man's situation and also his guiding purposes in life, you usually can, with firm confidence, draw your conclusions as to how he will behave. This we see from the assured way in which we undertake to predict and answer for the conduct of a friend, whose mind we believe ourselves to understand, in circumstances in which he has not yet been placed. All that is true in the objection is that, without insight into men's purposes, we are without the key by which their conduct must be understood and forecasted. The unity

which rational action exhibits is that of adherence to a definite plan, not of undeviating routine conformity with a rule.

Our answer to the foregoing objection leads of itself to the raising of the difficulty in a much more rational and serious form. Yes, it may be said, we fully grant all you have so far urged. But the whole difficulty is that, as you have yourself admitted, we do not know what the purposes of Nature, if she has any, may be, and yet are able with marked success to forecast her behavior. The test of rationality is power to adapt a preconceived plan of action to fresh situations as they arise. Hence, while, as you say, caprice is not compatible with rationality, mere routine compliance with an unmodifiable general rule is no less incompatible. But it is precisely this routine regularity which we, as a fact, find in the course of physical Nature. Undeviating mechanical conformity with general law is universal in Nature, and absolutely forbids us to attribute purpose or intelligence to her.

Now, in dealing with this undoubtedly formidable argument, we have to begin by repeating and emphasizing an admission which has already been made earlier in this essay. It is true that we cannot, by observation of facts, directly verify the presence of purposive action in inorganic Nature. It is true again that there can be no rational purpose where there is absolute, undeviating, conformity with general rule; adaptive modification of routine to meet fresh circumstances is, as the objection urges, of the very essence of rationality. It is also true that the course of Nature does appear to us to exhibit evidence of such mechanical conformity to law, though we must remember that the proposition that the conformity is absolute is a metaphysical postulate which the appeal to empirical fact can neither establish nor refute. Yet we seem to have shown that if Nature is real at all, it must have just that character of purposiveness which the objector is supposed to deny. Our task then, in meeting the objection, must be to show how what is really purposive and intelligent action may come to wear for us the appearance of mere mechanical routine.

How this can be, we may see from a consideration of such statistical laws of averages as we can establish with regard

to the behavior of masses of our fellow-men. Though prediction in the case of any individual man, without insight into the nature of his purposes, is impossible, prediction without such insight, or in other words, the formulation of mechanical general laws of the behavior of aggregates of individuals is largely possible, as is illustrated by the success of economics and sociology. Thus, I cannot say with any degree of certainty that a given individual will in a given case sell in the dearest market and buy in the cheapest, or will shoot himself, unless I possess a very thorough knowledge of his individual character and purposes. I can however say with a fair degree of accuracy, that men of business will sell in the dearest market and buy in the cheapest; or even that a certain number of Englishmen will shoot themselves in a given year. All general truths about the concrete behavior of mankind are of this average or statistical character; they hold good of an aggregate, taken *en masse*, but afford no certain conclusion about any particular individual. The reason of this is that they do not rest on any true insight into individual purposes. They indicate that there exists a certain group of purposes which steadily influence the life of a society in a certain direction, without throwing any light on the special character of those purposes themselves. Thus the approximate constancy of the annual number of suicides in a country shows that on the whole, any diminution in one of the motives leading to suicide is balanced by a corresponding increase in the effectiveness of some other motive. Approximate regularity thus proves, not absence of individual purpose, but the presence of mutually compensating purposes, of which the individual character cannot be more closely specified.

Now, it is one of the best suggestions of Prof. Ward's most suggestive Gifford Lectures that what we call the laws of Nature are, in all probability, precisely uniformities of this statistical kind. They may, that is, be one and all statements which are true as averages, when you are dealing with facts and processes in the gross, without being the exact truth about any one individual thing or process in the natural realm. Thus, our chemical statements about the atomic weight of the



elements have no serious claim to be taken as literally and exactly true about the individual atoms if indeed atoms are anything more than a fiction of our own devising, convenient for purpose of calculation, but answering to no external reality. The individual atom is not given to us as a datum for our investigations; we base all our results about it upon operating with masses which are taken to consist of huge multitudes of atoms, and assuming that any individual differences between their components may be left out of account. Hence the individual atom, when taken to be the exact counterpart of every other, may, for all we know, be just such a creation of pure theory as the average Englishman or the average middle-class man of social statistics. That, for the purpose of dealing with an aggregate of things or processes, the individual differences between its components may be disregarded, is no ground for inferring that they do not exist.

What is true of chemical statistics may be urged with equal force with respect to all the apparently exact uniformities in Nature. The appearance of mere routine and mechanism may well be due to our own inability to follow any natural process in all the wealth of its individual detail. This inability has itself several sources. Some processes we fail to follow because of the rapidity with which they take place, or for want of organs of sense adapted to observe the excessively minute. For instance, for us who cannot observe the actual strokes of a gnat's wing, but can only compute the rate at which they occur, one beat of the wing must inevitably be regarded as exactly like any other; it does not follow that each may not have an individual character of its own for the creature itself. We have only to imagine an intelligent being so constituted as to be equally unable to keep pace mentally with our own actions, to realize how easily human history itself might be reduced to an apparent repetition of a single type of mechanical reaction. Again, other processes may impress us as purposeless because of the extreme slowness with which they are accomplished. The mere fact of an intelligent adaptation to environment requiring centuries for its completion would be sufficient to make it wear the guise of mere purposeless hap-

pening to the human student. Yet, as far as we can see, the peculiar limitation of what Professor Royce calls the time-span of our attention, in virtue of which all but a few of the processes of Nature are either too rapid or too slow to be followed in their individuality, is altogether arbitrary. We have no reason to believe that the confining of attention within these temporal bounds or within any others is a consequence of the nature of intelligence as such. Hence we can see, as Professor Royce urges with so much force, that much of the apparent purposeless uniformity of Nature may be a mere illusion due to this one peculiar limitation of our own consciousness. The same can be said with reference to other circumstances which prevent us from following natural processes as individual trains of events, such as the structure of our own sense organs, the numerical limit set to our power of simultaneously apprehending a multiplicity of objects. Were these difficulties removed, could we for instance determine at will the time and space conditions of attention, or the kind and quality of our sense organs, so as to be able to follow any natural process we pleased in all its detail as an individual process, it may well be that the last vestige of mechanical regularity would disappear, and we should directly see in the changes of the natural world that purposive character which at present we miss. In such a purposive world of spiritual beings, there might of course be every grade of intelligence and rational activity from the all but barely mechanical up to the purely rational, but the merely mechanical would always represent a conceptual lower level to which there might be indefinite approximation, but which could never be actually reached in fact.

But what on such a theory becomes of science and its rigorously universal laws of Nature? Well, they remain on this theory precisely what they must be on any theory but a demonstrably mistaken one. So far as they can be verified by concrete experiment and observation, they are statements about the actual course of Nature as it appears to us, who are unable to follow individual processes as such, and have to content ourselves with results true in the aggregate. But for the practical control and prediction of natural events, in the degree

required by the needs of human life, these results are amply sufficient, and our inability to deal directly with the individual process as such is of no account. In so far as the scientific law lays claim to more than this relative validity, in so far as it pretends to rigorous universality and truth, it must be for any sane theory, what it is for ours, a pure hypothetical statement of results which follow universally and rigorously, if the premises from which they have been inferred be assumed to contain a complete enumeration of conditions. Except in this hypothetical sense no one who understands what he is doing has ever claimed rigorous scientific truth for any law of Nature. All of them, regarded as pieces of pure science, are problematic statements as to what would inevitably happen, if certain specified conditions and no others were real; not one is, or claims to be, a record of the course of an individual process as it actually takes place. And except on the strength of a metaphysical misunderstanding, no other view of the meaning of a law of Nature has ever been upheld.

B. Yet further; not only is there no force in the attempts which have been made to prove the course of Nature purely mechanical, the very concept of a pure self-existing and self-directing mechanism is an intellectual absurdity. We might well be surprised at the prevalence of mechanical theories of the world, if we would more constantly bear in mind that there are two propositions which can be made with absolute truth about all the machines with which we are acquainted. All machines without exception are the creation of intelligent and purposive agents, and all machines are the direct and transparent embodiment of specific purpose. A worse analogy than that of a machine could scarcely have been devised, from the point of view which seeks to treat Nature as a self-existing purposeless system. For no machine ever made itself, nor will any machine really maintain itself in action without the supervision and assistance of intelligence of the same kind which originally devised it. A machine is a structure specially devised to perform work of a given kind. Thus it owes its very existence to previous purposive limitation of the possibilities to be got out of it, with the view to the realization of a def-

inite end. It is the very incarnation of purpose of the most self-conscious and rigidly definite kind. Again, it never really goes of itself; its action has always to be initiated and at various points regulated by the intervention of conscious intelligence. The most complicated machinery will not work unless it is directly or indirectly set going by the act of a conscious being, nor, if the result is to be that for which the machine is devised, can human regulation be dispensed with. Not to add that where the machine is required for the production of anything, its material has always to be furnished from without by the same kind of conscious purposive action.

Again, in virtue of the definiteness of the ends which determine the structure of the machine, we may call the machine quite the most striking instance of absolutely manifest and transparent purpose the world has to show. In proportion as a machine is properly constructed, its very structure should be of itself a sufficient clue to its purpose. Hence, the comparison of Nature to a machine ought if it is to be apt, to imply that Nature is in all its course dependent on conscious intelligence, and that it is the realization of manifest purpose. The so-called mechanical theory asserts the reverse of all this; it maintains that Nature is the exact antithesis of a machine in every respect which gives the machine its peculiar character.

The case stands thus: Every machine is the product of intelligent devising, and is moreover at every step of its working dependent on intelligent oversight. Intelligent agents, and machines of their fashioning, as subordinate instruments in the execution of their purposes, we know well enough; but what are we to make of a machine of which all we know is that it possesses not one of the specific qualities of the machine? The thing is a plain metaphysical monstrosity, and no waste of words will make it anything else.

What then is the true place of the mechanical in the system of things? Reflection on the character of what we call our own mechanical actions may help us to a conclusion. The mechanical in human action, where its history is traceable, always reveals itself as the level to which purposive action sinks when it has become familiar by habituation, and no longer

requires special attention for its due performance. Our secondary mechanical acts are not in any sense opposed in their essential character to our acts of conscious purpose. They begin by being themselves such fully conscious purposive acts,\* and even when they have grown habitual, just in proportion as the course of our lives is ordered on a rational plan, they still only occur as an integral but subordinate factor in the performance of acts which are the fulfilment of a higher conscious purpose. Human experience, which is all we have to guide us in our interpretations, definitely suggests that this is the universal function of the so-called mechanical in a rational universe. Thus mechanism itself, when rightly conceived, would have no meaning except as a subordinate aspect of intelligent teleological action. And this is precisely the significance mechanism must have, if there is to be room for the spiritual in the universe. A universe part mechanical and part spiritual, would be, from the very want of an intelligible connection between the two parts, a monstrosity. A universe double-faced, like Janus, with an all-pervading mechanical aspect and another all-pervading spiritual aspect, sounds well enough in theory until you ask which aspect gives us the deeper truth, and, in case both are equally near the truth, why we should trouble to view the facts under two aspects, when one would have served our turn as well. But, if the spiritual aspect of the whole of things gives us the fuller truth, mechanism cannot be equally prominent everywhere. From the lowest level of intelligent action, where it is all but indistinguishable from bare mechanism, upwards, the significance of the mechanical must grow steadily less and less, like the element of passivity in the hierarchy of the Monads with Leibnitz, though, until we take into our purview the whole realm of being regarded as the manifestation of a single spiritual principle, it can never be altogether transcended. This is why I said, at the beginning of this essay that, if any one fact in the universe is merely

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\*I mean, of course, that they begin as fresh adaptations to a novel element in the environment and thus come originally under the head of what Stout calls "perceptual reaction," not that they necessarily involve an "idea" of the purpose they fulfil.

mechanical, in the sense of the current mechanical theories, all facts must be so, and there will be no place in the scheme of things for morality or religion.\*

#### IV.

A word or two may be said, in conclusion, on some results of general interest which would follow from accepting our argument in its leading outlines. It should be observed that we have carefully refrained from raising ultimate metaphysical issues which might lead us too far away from our immediate subject. We have throughout been dealing with the problem from the standpoint of the every-day thought which takes Nature and our self as it finds them, more or less in opposition to one another, and at any rate, as two given objects external to each other. And we have seen that, while still remaining within the limits of this every-day thought, we have reason to regard the world of physical Nature itself as composed of beings of an intelligent and purposive kind, and thus far akin to our own inner life. How we are to conceive of the unity of that universe which includes ourselves and Nature together, as elements in a single totality, it was not to our purpose to inquire. Our result has done nothing towards showing whether it can be the final truth about Reality to regard it as a society or hierarchy of purposive selves, or whether this view itself may not ultimately need to be transcended.† Our ob-

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\*There is no contradiction between this result and the suggestion previously made that if we could follow natural processes in their individual concreteness we might find none of them ultimately uniform. For, while mere uniformity is inconsistent with individuality, the higher the degree of individuality the more prominent will be the aspect of fresh adaptation, and the less prominent the element of habit in the individual behavior.

†Though it must be remembered that such a view, if transcended at all, must on our principle be *self-transcended*. We may be led, by thinking it out, to the conclusion that reality as a whole must not be called merely purposive, precisely because it differs from our experiences of purposive life in exhibiting eternally realized purpose, whereas our finite lives take their whole coloring from the contrast of aspiration with attainment. This might prevent our acquiescing in the description of Reality as a "kingdom of selves," or "society of persons," but would not impair the force of the contention that such a view is nearer the truth than those which reduce nature to mere mechanism.

ject was not to demonstrate the ultimate validity of the categories of personal and social life, but simply to justify their application to the realm of physical Nature. How the whole system of beings our analysis has revealed forms a unity, is a question still left over for Metaphysics. Our present result belongs rather to what we may call the Philosophy of Nature. Within the limits of its applicability it possesses very great significance, of which we can here only indicate the merest fragment.

In principle it will be seen that our result amounts to a vindication of the immediate impression made by the general way in which Nature as a whole comes to us, as felt and interpreted by the poet, against one-sided consequences suggested by the exclusive consideration of the very special aspects of Nature selected for study by the exact sciences. We saw in fact, that if the Nature of the pure student of science appears dead and purposeless, it is because he has himself, by initial assumptions, which are of course perfectly justifiable in so far as they are needed for the solution of particular problems, chosen to make it so. The thinker who complains that Nature is dead or indifferent because she appears so in the investigations of mathematical physics is in the position of the man who refused to believe in the soul because he had never found it in the dissecting room. Our appeal was from the facts of Nature as thus prepared by all sorts of initial alterations and restrictions for the purposes of the specialist to the facts of Nature taken broadly as a whole. Now this appeal from the special assumptions of the various sciences, which all necessarily and rightly involve mutilation of experience, to experience as an as yet unanalyzed whole may be called an appeal to Faith, or a vindication of the claims of Faith to exercise a real and rightful influence upon our intellectual life. It should be observed that, from its character, this appeal to Faith, was eminently not an appeal to the irrational, or to an indefinable something "beyond reason"; it was rather a vigorous expression of our conviction of the fundamental rationality of experience as a whole, and our instinctive confidence that views which left our thought

and our deepest ethical aspirations in fundamental antagonism could not represent that experience truly in the end. I should like to suggest that we have in this appeal to experience as a whole against theories based exclusively on its special parts a general definition of legitimate and reasonable Faith in religious as well as in other matters.

If our view of Nature is in principle correct, it will follow that we have the best ground for trusting in that witness of immediate experience which seems, at our times of peaceful insight at least, to assure us that Nature is not indifferent to our ethical aims and struggles. Our confessed inability to say precisely what is our own place in the hierarchy of intelligences we divine as the inner meaning of the physical world should be enough to keep us from perverting this conclusion into an immoral assurance that the scheme of things is under any obligation to make our private purposes its centre. We shall, however, not fail to insist that the vision of an indifferent or immoral Nature, "red in tooth and claw," which haunts and oppresses so many of the best minds of our time, appears in the light of our conclusion no more than a nightmare of the judgment. Our result has proved the justification rather of those greater poets who have found in Nature a principle akin at the heart to all that makes for what is best in man. Perhaps, as we survey the tangled web of physical happening, the phrase which will best express our mingled faith and diffidence will not be much unlike Stevenson's saying: "It is a strange world, but there is a manifest God in it for those who care to look for him."\*

I have only time for one other thought. There are telling arguments, familiar to all, which show the essential connection between the social and the moral. Morality seems

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\*It might be said that to prove Nature purposive is not to prove her ethical; her purposes might be those of the devil. This is, of course, true, so long as we are dealing with mere logical possibilities, but the general effect of human experience, as a whole, when interpreted by the great poets, is to negative the suggestion. In the main, in spite of incidental discords, they have found her on the side of good.



impossible apart from relations of a definitely social type.\* Yet there are other considerations, to my mind at least equally weighty, which compel us to deny that the whole content of individual morality can be exhausted by relations to the members of any purely human community. To me at least it seems quite manifest that if I am to make my moral being my prime care, I must be allowed to reckon as part of that being relations to Nature, and again perhaps to God, which I do not see how to include in the notion of social duty, if society be taken to mean any merely human institution. But now, if Nature itself may be most truly thought of as a social realm of sentient beings, and if we are, as I have tried to suggest, not entirely cut off from all communion with the non-human social beings around us, but can at least at moments, catch something of the general spirit of the whole, our relations with Nature will themselves, in so far as they have an ethical character, be of a social type, and so our problem, though not abolished, will at any rate be made less acute and difficult by our Philosophy of Nature. The Stoic's "dear City of Zeus," faint as our knowledge of most of our fellow-citizens in it must remain, will be less of a dream to us, and more of a reality. And this in its turn may be not without a furthering influence on our practical attainment of the blessed life.

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\*Though the more extreme advocates of this view sometimes seem to confound two very different propositions; (1) it is only through the instrumentality of social life that the individual becomes ethical, (2) the whole content of the individual's ethical life is social.